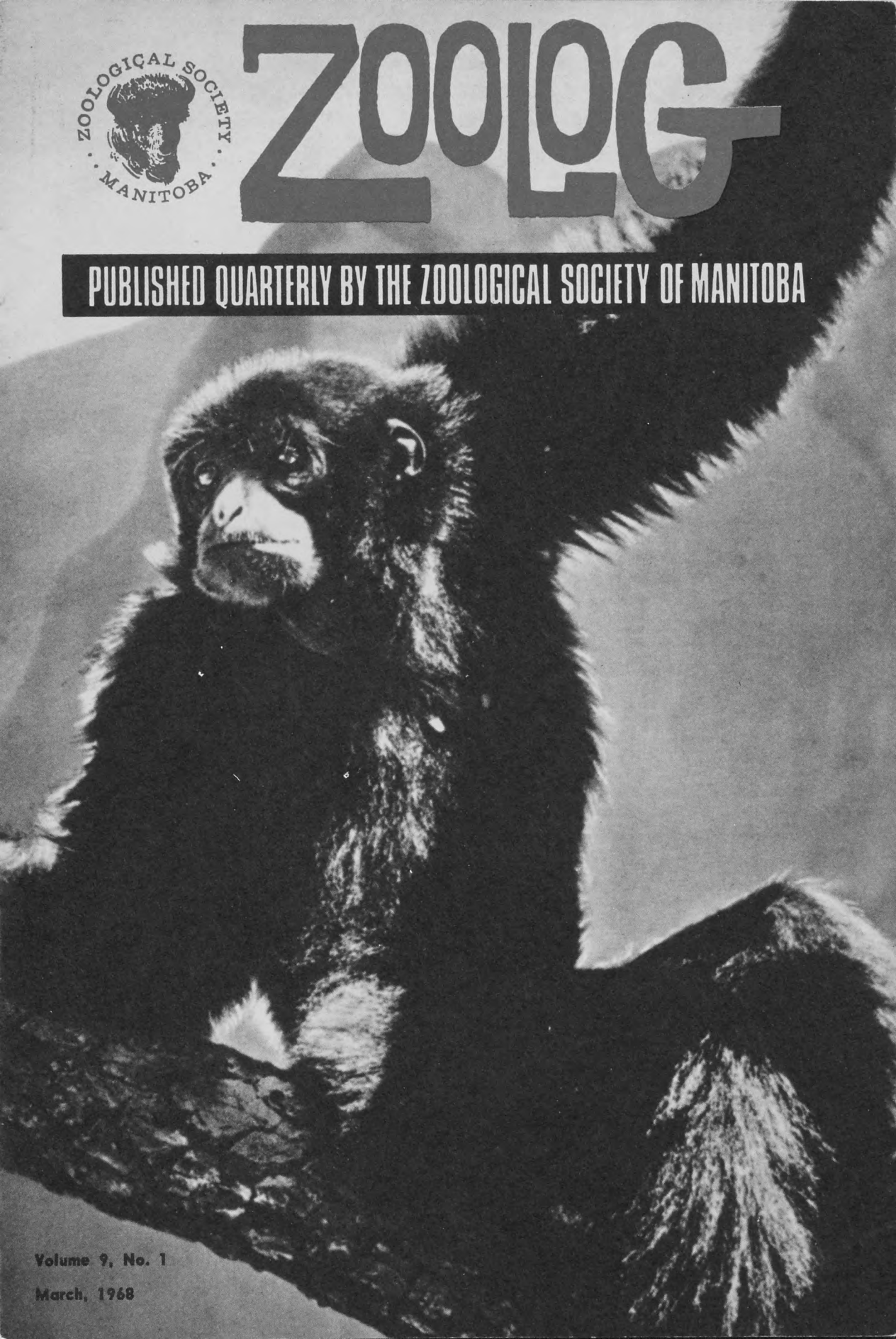




# ZOOLOG

PUBLISHED QUARTERLY BY THE ZOOLOGICAL SOCIETY OF MANITOBA



Volume 9, No. 1

March, 1968

Zoolog is published quarterly by the  
Zoological Society of Manitoba.  
Editor — Dieter H. Schwanke

Bits  
and  
Pieces

*In a letter to the President of the Zoological Society of Manitoba, Dr. George Hodgson writes of his impressions of the Bangkok Zoo: Bangkok has quite a good zoo. The birds are not displayed to best advantage, but the variety is wonderful. Glover (Dr. Richard Glover, former President of the Zoological Society of Manitoba and contributor of articles in this issue of ZooLog) would enjoy seeing their Malay Fire-backed Pheasants, Lineated Kalij Pheasants, Vulturine Guinea-fowl, Green Peafowl and Great Argus Pheasant. I thought their display of Redbilled Blue Magpies was good as were their Roul-rouls, Toucanettes and Philippine White Cockatoos. — I have some slides that I hope to show you sometime. What really hurt was to see a beautiful Grizzly Bear in the Bangkok Zoo called "Brown Bear".*

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On April 13th, Al Oeming of the Alberta Game Farm will narrate and show a film, Galapagos, shown previously in a series on CBC Television, in the new concert hall. Tickets are available at Celebrity Box Office.

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Members of the Zoological Society will be delighted to hear that R. W. Sutton, Chief of the Division of Interpretation of the Manitoba Museum of Man and Nature has been awarded a Centennial Medal by the Government of Canada for outstanding service in his profession for the last twenty-seven years.

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On May 29th, the annual meeting of the Zoological Society of Manitoba will be held at Vasa Lund. Planned is a social evening with dinner.

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The preparation of a wonderful new guide book for Assiniboine Park Zoo is progressing well, and members may expect their free copy sometime in spring.

**The editor of  
Zoolog will gladly  
accept applications  
for membership  
to the Zoological  
Society of Manitoba.**

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# President's Message

I suppose that most members of the Zoological Society of Manitoba seize the opportunity of looking over other zoos when visiting in other cities, and I am no exception. While in Vancouver on business a short while ago, I went over to Stanley Park, which was my first visit for several years, and to say the least I was impressed with the developments.

It seems to me that the real heart of this zoo is the splendid aquarium, which has undergone extensive refurbishing and additions in recent years. My visit was all too brief; one could spend many hours slowly moving from exhibit to exhibit studying the occupants of each tank. I know from reading the bulletin of the Vancouver Aquarium Society, that they have a most active membership, and judging from the mid-week traffic, it is evident that this aquarium has captured the imagination of the whole community.

The rest of the Vancouver zoo is rather small but benefits greatly from being located in a dramatic setting amongst the Douglas firs of this small spit of land which juts out into Burrard Inlet. In spite of the diminutive size of this zoo however, they have achieved something that I feel must be very important in zoo exhibition, and that is an intimacy with the animals on the part of the viewing public. I refer particularly to the fact that everywhere one finds animals, especially ducks and waterfowl at large. These birds have become extremely tame and one must almost be vigilant to avoid stepping upon them.

A similar thing has been achieved in several of the viewing areas of the aquarium, where visitors are encouraged to reach into a pool to pick up a star fish, a sea cucumber or a shell fish.

We have done some of this at Assiniboine Park but have we done enough? Perhaps our zoo is much too large to be able to control this kind of activity and I have not really discussed the matter with our Zoo Director. It is an interesting technique however, and one which can hopefully be developed here in Manitoba.

**George Heffelfinger**

## On the Cover

Photo — Artur Heye, 1933

**Siamang, *Symphalangus syndactylus***

Still ranges throughout southeast Asia. Hopefully, the Assiniboine Park zoo will eventually be able to help in the conservation of this species.

Diefer Schwanke, March 1968



Canada Lynx, *Lynx lynx canadensis* at Assiniboine Park Zoo. Please note the long ear tufts.

# Our Zoo

## Animal

### Collection (6)

As promised in the December 1967 issue of ZOOLOG, we continue to look at native Canadian stock in our collection. An advisory committee recommended in 1950 that our Assiniboine Park Zoo exhibit the fullest possible range of Canadian game animals and fur-bearers. Where do we stand in regard to Canadian fur-bearers?

My references are the masterplan for development of our Zoo and a booklet, "Wild Fur Bearers of Canada", issued by the Department of Trade and Commerce in Ottawa.

#### **Arctic Fox, *Alopex lagopus***

This is an inhabitant of the barren tundra north of the tree line. We are presently keeping five, two male and three female Arctic Foxes together and will provide final accommodation for them in the northwestern portion of the Zoo. The Arctic Fox seems to be an example of the need for competition among males, before successful breeding happens. The Alberta Game Farm hoped for Arctic Fox pups for several years in vain, until an additional male was introduced to the cage of the pair. There were pups the following Spring. Similarly, we introduced a male (and two females) to our long-established pair, and for the first time in our Zoo's history, a female Arctic Fox is seemingly pregnant.

#### **Badger, *Taxidea taxus***

An animal of the dry prairie areas, the Badger is an efficient, rapid digger. It is best exhibited in a dark area, dimly lit with red light, where it would behave actively, just as in nature at night. We

do not have such a facility as yet and are therefore negotiating to trade our pair of Badgers off to a Zoo in New Zealand. It should be fairly easy to acquire American Badgers again at a later date, when suitable facilities are available.

#### **Grizzly Bear, *Ursus arctos horribilis***

Our old breeding pair from the West Coast area of Canada, were sent to the Brookfield Zoo of the Chicago Zoological Society before the re-building of our bear moats. We expect the Alberta Game Farm to supply cubs of a rarer form of the Grizzly, either Barren Ground Grizzly Bears or Swan Hills Grizzly Bears, hopefully this year.

#### **Beaver, *Castor fibre canadensis***

On and off, we have Beavers in our collection, donated by the Manitoba Wildlife Branch. We normally show these Beavers for a while at our children's zoo and then trade them off to other institutions. Thus we once sent a pair to Japan. A nice, permanent Beaver exhibit is planned as part of the "northern aquatic exhibits" in our masterplan.

#### **Bobcat, *Lynx rufus***

There is a pair of lovely, large Bobcats in our collection, but they have never bred. They were trapped not too far away from Winnipeg and may be brother and sister. They are shown in the "northern cat cages", which are so beautifully landscaped and vine-covered (except on the viewing side) that one tends to forget that they are cages at all.

#### **Canada Lynx, *Lynx lynx canadensis***

Our Lynx are to be seen in another one of the "northern cat cages" and, at



present, in another location as well. They look most beautiful in their winter coats. We keep an adult male together with several females and provide plenty of individual retreats. This seems to please the Lynx' taste, because baby Lynx were born and raised at our Zoo in 1960, 1964, '65, '66 and '67. Few Zoos have had this much success with Lynx, the notable exceptions being Stockholm, Rotterdam and Brookfield. A pair of our Lynx are sold to the Zoo of Syracuse, N.Y. and will be shipped shortly, and should there be a baby Lynx available for sale later on in the year, we already have a buyer in California. Reportedly shy, Lynx have nevertheless occasionally invaded the metropolitan Winnipeg area.

**Short-tailed Ermine, *Mustela erminea* and**

**Long-tailed Ermine, *Mustela frenata***

At least one of them occurs in the Assiniboine Park. Ermines do not do very well in cages, and it is therefore not planned to exhibit them.

**Fisher, *Martes pennanti***

An impressively large marten, normally living in dense northern forests. Yet our beautiful male Fisher was collected unharmed near Middlechurch, just a few miles north of Greater Winnipeg, and given to us by the Manitoba Wildlife Branch. The female Fisher was obtained from northern Minnesota. Exhibited in a cage northwest of the bear moats (see ZOOLOG Volume 8, No. 4).

**Marten, *Martes americana***

Never kept at our Zoo since 1959, never offered to us either.

**Mink, *Mustela vison***

Presently, no Mink are shown at our Zoo. An attractive exhibit for Mink could be incorporated in the children's zoo or the far western Wolverine/Coyote/Wolf area of our Zoo masterplan.

**Muskrat, *Ondatra zibethicus***

As an exhibit in our Zoo, the Muskrat provides almost the identical story as the Beaver. It has occasionally been kept at

the children's zoo, but will get a permanent display area when the "northern aquatic range" is built.

**Otter, *Lutra canadensis***

An uncommon, but very attractive Zoo exhibit. Here again, when the "northern aquatic range" is constructed, an Otter exhibit is planned to be part of it.

**Coyote, *Canis latrans* and**

**Wolf, *Canis lupus***

On and off, just as the Manitoba Wildlife Branch donates them to our Zoo, we have shown young Coyotes and young Wolves, but had to barter them to other Zoological Gardens when they grew up. Fair-sized enclosures for these animals are planned near the Zoo perimeter road. As my good friend, Dr. Richard Glover, emphasized so rightly, care has to be taken to prepare a "Wolves' wood" long in advance, planting and protecting coniferous trees, whose fallen needles provide the dry floor.

**Raccoon, *Procyon lotor***

Although this is one of the commonest animals in northern Zoological Parks, we have built a lovely exhibit for Raccoons, where they can be seen way up in trees on warm days, hiding in dens and caves when they want to, washing food before eating it, and so on. Thus a group of very common animals has made a fine attraction in our Zoo.

**Red Fox, *Canis vulpes***

While Fox pups have often been shown at our children's zoo, no adult Foxes were exhibited since we tore down the outdated, ugly cages at the north end to make room for the perimeter road and fence. Since the Red Fox, much as the Wolf, is an animal featuring prominently in folklore, children's picture books and fairy tales, a final Red Fox exhibit is certainly in demand and will be placed west of our Snow Leopard cage, between the "eastern foothills" and the "India House". By the way, it has recently been confirmed that North American and European Red Foxes belong to the same species.

### **Striped Skunk, *Mephitis mephitis***

It is common Zoo practice to ask, when a live animal donation is offered: "Male or female?" But when someone offers a Skunk as a gift, sex takes second place to the question: "Equipped or deodorized?" The Skunks in our Zoo are deodorized. We will provide a final, landscaped Skunk display west of our Snow Leopard cage in the "eastern foothills".

**Red Squirrel, *Tamiasciurus hudsonicus*** and **Eastern Grey Squirrel, *Sciurus carolinensis***

Both of these entertaining, attractive small mammals live in Assiniboine Park, where they can be observed in pleasant surroundings.

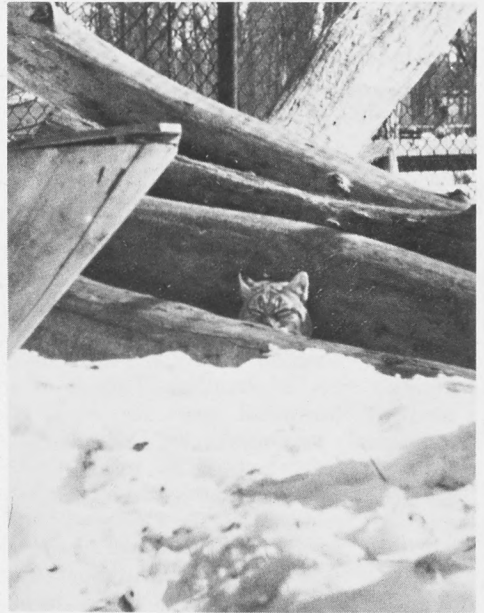
### **Wolverine, *Gulo luscus***

The Wolverine is an animal high up on our "wanted" list. Thanks to a donor who wanted to remain anonymous, our Zoo has a Wolverine cage, but no Wolverines yet. Yes, there were Wolverines in our Zoo years ago. I remember seeing a fine specimen when I visited Winnipeg "to look things over" in August, 1958. But a few months passed between that visit and my immigration, and it was during these months that a Zoo Director came from Alberta "to even out the trading account" and took the Wolverine along.

I shall comment on marine fur bearers of Canada at a later date.

Altogether, I think I can safely say that the majority of Canadian (land) fur bearers are shown or will be shown in attractive exhibits at our Assiniboine Park Zoo. While some species cannot yet be accommodated in adult specimens, we have made efforts to show young animals so that a fairly large number of Canadian fur bearers normally are in our collection during the summer months. As the building program takes shape, an ever larger number of Canadian mammals find good, final homes at our Assiniboine Park Zoo.

**Gunter Voss**  
**Dr. rer. nat.**



Dieter Schwanke, March 1968

**Bobcat, *Lynx rufus*, peering from its logpile at Assiniboine Park Zoo. Note the almost complete lack of ear tufts.**

# The Keystone

## Freshwater Fishes

How many species of freshwater fish reside in Manitoba? There are 80 species in 18 families. If we exclude the 7 introduced species, the native fauna is 40% of the Canadian total of 184 species divisible into 26 families. This is a respectable provincial total for it is exceeded only by Ontario and Quebec. Three families predominate. The most numerous are the minnows with 22 species. Next are the salmon, trouts, and whitefish with 10 species and finally the perch family with 8 species. Thus, more than half (55%) of the native fauna belong to these 3 families. As half of the Canadian fauna is derived from these same 3 families, Manitoba also has a good representation of the dominant families of Canadian fishes.

It is incorrect to assume that the 73 native species occur throughout the province. Their range within the province can be more readily understood by considering their general pattern in North America. Thus, in the main, our freshwater fishes extend to the south and east of Manitoba. Some also extend north and northwestward. By virtue of its central location, Manitoba, the Keystone Province, provides the Canadian limit of distribution of various fish. The province is more frequently the westerly boundary than it is the easterly one. Ten years ago 17 species had their westward limit in Manitoba. Subsequent knowledge has reduced this to 12. However, only 3 species have their eastward limit here.

Why are our fishes so distributed? The reasons are a combination of geology and ecology. The geological reason was glacial Lake Agassiz whose outlets were used as waterways for the reinvasion of Manitoba. Ecology is the other responsible factor. The definite range over which a species occurs depends upon the interaction of its physiology and its external surroundings. Temperature appears to be the main factor in the external environment. Probably the best relationship between temperature and distribution that has been developed is the isotherm theory, proposed by Isobel Radforth in 1944. She showed that the northern distribution of some Ontario species was related to the July average temperature. In 1964 the Ontario distribution of 8 more species was related to isotherms.

### Editor's Note:

This schematic drawing is a generalized rendition of Glacial Lake Agassiz and environs based on a silk screen print made by John Elson. The adaptation made for Fig. 1 and the copy used on the book cover were prepared by Ian Cameron. We are grateful to Dr. Elson for letting us use this and to Miss Cameron for her skillful art work and draftmanship.

*\*Lecture to joint meeting of Zoological Society of Manitoba and Winnipeg Aquarium Society, November 14, 1967.*





Distributional studies on Manitoban fishes are not necessarily a *cul de sac* pursuit. Yet, this aspect of their biology is incomplete. In fact, no one person has collected all of the 73 species in Manitoba. A decade ago at least 15 species had not been collected from more than 10 localities. As this is 1/5 of the fauna it shows how limited was our knowledge. I am sure it has improved since then although new information has not been published.

One profitable method of studying the Manitoban fish fauna would be simultaneous research on two species in the same genus . . . e.g., the Goldeye and Mooneye (*Hiodon alosoides* and *H. tergisus*) or the White and Longnose Suckers (*Catostomus commersoni* and *C. catostomus*). This could be done for at least 14 pairs of our native fishes. Such comparative studies might indicate not only differences in the distribution of the pair but also the reasons for these differences. They might also show that their ecology is different depending on whether the pair are associated or separate in the same habitat. The spawning habits of the pairs should also be examined to learn how they are reproductively isolated and to find possible mechanisms for the operation of the isotherm theory. Laboratory spawning experiments should be undertaken to confirm the field analysis. Obviously these comparative investigations should commence at the United States border and proceed northward. The Winnipeg River drainage basin should not be neglected.

As the ecology of the species becomes known, we will be able to document the changes in distribution and abundance that are occurring at the present time. Carp were not recorded in Manitoba until 1938. In 1966 more than a million pounds were caught commercially in Lake Manitoba. Its range in Manitoba and Saskatchewan was determined in 1957. Have further advances been made in the past decade? The White Bass (*Roccus chrysops*) apparently is extending its range. It

was first caught in Manitoba in 1963. Dr. A. Fedoruk advises that about 6 more specimens have been found in Lake Winnipeg since then. We should be aware of further invasions from neighbouring areas. The most likely advance is from species already occurring in the Red River drainage area. Several possibilities exist. The most likely is the Bigmouth Shiner (*Notropis dorsalis*) which is a very common minnow in Minnesota and apparently has increased in abundance in both South and North Dakota.

Fishes also can play a role in understanding our past. Bony material at archaeological sites can indicate the presence and possibly abundance of the fishes when the site was occupied. Comparison with the present state can possibly indicate the environmental changes that have occurred. The converse also can apply although the conclusions are more risky: Absence at the "middens" compared with its present general abundance suggests that the species has been increasing. The Freshwater Drum in the Grand Rapids area is believed to exemplify this situation.

This cursory review of the keystone freshwater fishes has a double-barrelled conclusion. It points to the advantages, perhaps even the need, for a repository for Manitoba fishes. With so many persons now directly and indirectly working on Manitoba fishes, it would be highly desirable to have a local depot for fishes collected in Manitoba. Here they would be accessioned, identified and the records of occurrence plotted. This co-ordination of knowledge would benefit all who have an interest in Manitoba fishes. My second conclusion is that I hope this review has increased your interest in one part of our fauna. It is varied enough to merit attention in its own right apart from any benefits to man. In addition, our fishes can provide information on the changing Manitoba scene.

**J. J. Keleher,  
Freshwater Institute,  
Winnipeg**



Pronghorns, gone from Manitoba. Helping in a successful effort to conserve these and other animals are people engaged in the fascinating hobby of wildlife photography as the author of the book "Outdoor Photography," Erwin Bauer. He took this picture in Centennial Valley, Montana.

# The Role of Zoos in Wildlife Conservation

*This was the subject of an international conference held at San Diego in October, 1966. Last September ORYX, the magazine of the Fauna Presentation Society, published papers read at that conference by the following experts of various countries, Peter Scott, Richard Filter and Caroline Jarvis from Great Britain, Eric Guiler from Australia, Dr. Boonsong from Thailand, Charles Shaw, Eugenie Clark and William Conway from the U.S.A., Perez Olindo from Kenya, Ian Player from South Africa, Carlos Lehmann from Colombia and Ian Grimwood from Peru. ZooLog will give its readers a summary of the subject in two articles.*

Wildlife Conservation is something which we all approve in theory but we do not always realize how urgent it is becoming. It means, simply, preserving for our children the wild creatures left to us by our forefathers. More wild creatures are in danger today than ever before. The job of saving them is one in which zoos have a big part to play. The subject falls into two parts; first, why is Wildlife Conservation so urgent today? And, second, what can zoos do about it?

The matter is urgent because today wild animals are being destroyed on an unprecedented scale. The cause is the phenomenal increase of human beings on this planet; and that of course cannot be prevented. But the total extermination of whole species of mammals, birds, reptiles and fish can and should be prevented. The job requires action now; and if we are to act wisely, we must first understand what is happening.

More human beings require more food. So forests are being felled, marshes drained and more and more land is being ploughed. As the native habitat of wild animals is turned into farms, the animals themselves must go. Manitobans will understand this well. Where Buffalo, Elk and Pronghorn once ranged over this province, there are now wheat fields. We cannot have both; and we must have the wheat. What has happened here already is happening in many other places today, all across Africa, India and South East Asia. It cannot be prevented; but it is necessary to save the big game species of these countries as ours have been saved. If we delay, it will soon be too late to do so in some cases.

Not only big game is involved. Farming requires more than merely ploughing prairies and felling forests. It also means destroying the weeds and insects which damage crops. This today leads to the widespread use of pesticides, of which some destroy more than is intended. They end by being washed off the land into the streams down which they flow to add to the pollution of our rivers and lakes which begins with factory waste and sewage. One result of this, noted by Peter Scott, is that in the last thirty

years eight species of fish have become extinct in the U.S.A. alone.

In many parts of the world wild animals are a cheap source of meat. The wars of the twentieth century have made trucks and firearms available where they were unknown or little known before. This form of modern progress had led to the wholesale destruction of wildlife in south eastern Asia, as was dismally chronicled by Dr. Boonsong. He needed two whole pages of *ORYX* to list the species now endangered there. They range from those splendid wild cattle, the Seladang of Malaya and Kouprey of Cambodia, to the biggest of present day lizards, the Komodo Dragon of Indonesia. In north eastern Asia the same process has almost, if not quite, destroyed the Mongolian Wild Horse and the Wild Camel.

In the past zoos have not been guiltless in this sweep of destruction. Their demands for great apes — now, one hopes, controlled — contributed to the alarming decrease of Orang-utans and Gibbons. Medical research is still demanding other monkeys in numbers that the wild populations may not long be able to supply.

Even the wildlife of deserts has not escaped. Motor vehicles have made their sandy wastes accessible as never before; and oil discoveries have made Arabs rich enough to buy the best vehicles that Detroit can produce. So this century has seen the extinction of the Arabian Ostrich; and that fine antelope, the Arabian Oryx, is nearly gone too. Its African relatives, the Scimitar-horned Oryx and the Addax, are similarly endangered.

All this raises the question of what can be done to stem today's tide of destruction. National parks and good game laws might seem to be the answer. But national parks only pay for themselves where there is a developed tourist industry; and some countries which need them most are least able to afford them. Likewise, the best game laws are useless unless they can be enforced; and enforcement is often least practicable where it is most needed. The job that zoos must tackle is therefore a large one.



Wisent; a pen drawing of Albrecht Dürer (approx. 1501). Albrecht Dürer is most famous for his drawing of praying hands. Perhaps this is another thing we could do for our vanishing wildlife.

## What can be done?

The stark fact that wild animals and their habitat are being destroyed faster than ever before raises the question:—What can zoos and zoological societies do to save threatened species?

First, we must realize that we have a job to do. We must dismiss as an out-dated absurdity the notion that a zoo is simply cheap amusement for children. Of course, provided it is good, a zoo does offer first class entertainment, and to all ages. But it has much more to do than that. No zoo is doing its job properly unless it also informs its visitors about the animals it exhibits — by such means as well drafted labels, attractive guide books and conducted tours. For education is one of its basic duties; and in the zoo as nowhere else the public can learn what a splendid heritage we have in the wild animals of the world.

The more people realize how much we have to lose by the extermination of a

species, the easier becomes our next task; and that task is raising money for the World Wildlife Fund. This fund is an international charitable organization which exists to give help wherever money can help preserve wildlife. It tries to raise \$6,000,000 a year — a petty enough sum for a worldwide job. As just one means by which a zoo could raise money to help this fund, Peter Scott recommended a wishing well; and he added that his own, at the Wildlife Trust at Slimbridge in England, produced almost \$2,000.00 a year, all in small coins thrown in by visitors. (*At the time of going to press a national Canadian headquarters for the World Wildlife Fund in this country is, we understand, being organized. We hope to have an article on it soon.*)

Zoos can breed stocks of rare animals from which in due time empty woods and plains may be repopulated. This is not a visionary or absurd idea. It is some-



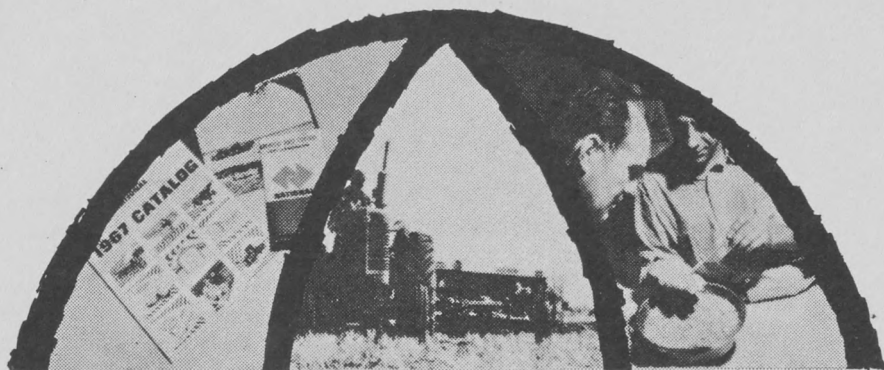
thing which has already been successfully tried. On this continent you may drive south and visit the Wichita Reserve in Oklahoma. There you will find, ranging freely over 59,000 acres of prairie, a large herd of Buffalo. Every one of those Buffalo is descended from a small foundation stock bred and presented by the Bronx Zoo in New York. Across the water the same job has been done with the European Bison or Wisent. This taller, slimmer woodland cousin of our Buffalo was wholly exterminated as a wild animal in the 1914-18 war and the troubled period that followed. In 1923 an international society was formed to help save what remained of the species. When this society took stock of the European Bison left in captivity, they found a grimmer situation than ever existed with the American Bison; and all pure-bred European Bison living today are in fact descended from just ten captive cows. But those ten were enough. There are over 800 Wisents in the world today; and many of them are ranging free and unfenced in the Bialowieza Forest in Poland. Once again, the species' original habitat could be restocked because there were captive-bred animals with which to restock it.

What has been done with the two Bison is now being done with other animals. For that purpose international cooperation has been organized and stud-books of captive stocks compiled for ten more threatened species, namely, the rarer local races of the tiger, including the Siberian Tiger, which like the European Bison, can be seen in the Winnipeg Zoo; and Father David's Deer, also to be seen in the Winnipeg Zoo, which annually reports its breeding results to E. H. Tong, at Whippsnade, the studbook keeper for this species. The others, not yet to be seen in Winnipeg, are the Mongolian Wild Horse, the Asiatic Wild Ass, the Indian Rhinoceros, the Pigmy Hippopotamus from West Africa, the Anoa, a dwarf buffalo from the Celebes Islands, and those three fine antelopes, the Arabian Oryx, the Scimitar-horned Oryx and the Addax.

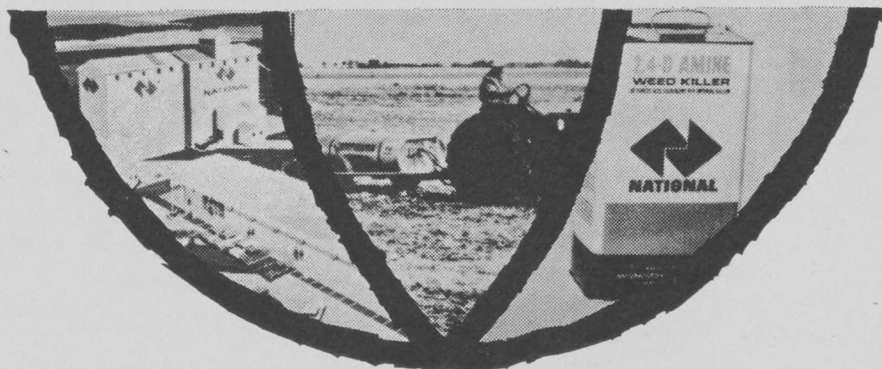
In this way a zoo can become what Caroline Jarvis called a "wild animal bank", a bank that pays interest by producing a regular increase with its breeding successes. But bankers have responsibilities; and so do zoos. Where rarities are concerned, the zoo's prime responsibility is to breed them, or surrender them to some zoo better equipped to breed them (as the London Zoo gave up its solitary female Arabian Oryx to help form a "bank" for the species at the Phoenix Zoo in Arizona). A zoo must also study all that contributes to the health and vigour of its rarities; and it must publish what it learns in order to help other workers on the job of saving rare species.

The importance of these "animal banks" is perhaps best illustrated by the case of a "bank" that failed. It happened over a century ago. The "bank" concerned was the private menagerie of the 13th Earl of Derby, at Knowsley Park in northern England; and it was evidently a very well run menagerie too. But in 1850 the 13th Earl died. His son, a politician who was thrice prime minister of Great Britain, had no interest in zoology and sold the whole collection. An annotated copy of this sale catalogue in the library of the Zoological Society of London tells what happened. Among the creatures sold were a young pair of Quaggas, an extinct and only partially striped zebra from southernmost Africa. Each went to a separate zoo (and in due course each bred, but only to produce mules with other equids). For Canadians it is even sadder to read that over 70 Knowsley-bred Passenger Pigeons were put up for auction at this sale. These too were scattered and left no descendants. It seems that if only the Knowsley Menagerie had been maintained, the Quagga and the Passenger Pigeon might still be living species today; and the world would be the richer for their survival. Their extinction rubs in the responsibility of zoos to act as good bankers and preserve breeding stocks of the world's rare and beautiful creatures for our children's, and their children's enjoyment forever.

**Dr. Richard Glover,  
Ottawa**



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ARE GRATEFULLY ACKNOWLEDGED

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Animal Donations, Native Animals,  
1963, 1964, 1965, 1966, 1967

**Zoological Society of Manitoba**

Moated Pens and Shelter, for Carnivores,  
1963

**Royal Trust Company**

Animal Donation, Pandas, 1963

**Carling Breweries Manitoba Ltd.**

Animal Donation, Lions, 1964.

**Bearing Supply & Service Ltd.**

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Society and thus become tax-deductible.**